



## First JASPER gas gun shot on target



The Nevada Test Site is home to JASPER, DNT's nearly 100-foot, two-stage gas gun. The gun recently fired its first successful plutonium shock-physics shot as part of the Stockpile Stewardship Program.

**By David Schwoegler**

NEWSLINE STAFF WRITER

On July 8, the Laboratory achieved a major milestone with the successful firing of the JASPER gas gun at the Nevada Test Site.

"The JASPER team successfully executed our first plutonium shot today at 2:35 p.m. The data demonstrate superb quality and a preliminary analysis indicates that JASPER will meet its

intended goal of generating high precision plutonium data," said Mark Martinez, test director, in an e-mail expressing his enthusiasm immediately following the shot.

Initial re-entry surveys show full containment. The shot specifics were 5.22 km/s (11,677mph or mach15.74), firing a 13-pin, heavy projectile weighing about 30 grams or 1

See **GAS GUN**, page 8

## Energy department confirms Laboratory's Steve Grey as director of Indian Affairs

Steve Grey, program manager for the Lab's American Indian program, has been confirmed to serve as director of Indian Affairs for the Department of Energy. Grey has been serving in an acting position since January.

In his new position, Grey will serve as an adviser to the deputy assistant secretary for Congressional and Intergovernmental Affairs as well as other senior DOE staff. He will advise them on a wide variety of high priority programs and policy issues of national interest, which involve state, local and tribal governments.

"I am very pleased," Grey said. "This is a great

See **GREY**, page 8

## Lab researcher helps develop experimental method for studying protein behavior

**By Anne M. Stark**

NEWSLINE STAFF WRITER

A Lab physicist, in collaboration with an international team of researchers, has developed an experimental method that allows scientists to investigate the behavior of proteins under non-equilibrium conditions one molecule at a time, to better understand a fundamental biological process of protein folding that is important for many diseases.

See **PROTEIN**, page 7

## Lab cybersecurity officer outlines Internet security challenges of the future

**By Bob Hirschfeld**

NEWSLINE STAFF WRITER

Can you define heterotechnochronicity? Probably not, since it's a term coined recently by Mark Graff, LLNL's relatively new chief cyber security officer.

The word refers to the need of some computer users to retain hardware and software from different technical generations to support critical applications. It's a problem Graff addressed this week during a talk examining the future of Internet security.

Graff, who says he is a "good worrier," paints a bleak picture of some possible problems ahead. One example: a back door buried in a major vendor's software that remains undetected for years, then is used by an attacker to "reap whatever rewards are desired."

Another potential nightmare involves sets of

See **INTERNET**, page 7

## Presidential medal reception for Teller

Director Emeritus Edward Teller and Shirley Petty examine the Presidential Medal of Freedom that Teller was recently awarded for his lifetime achievements during a reception in his honor Tuesday in Bldg 111. The medal is the nation's highest civilian honor.



JACQUELINE MCBRIDE/NEWSLINE



**Scholarship winners**

— Page 3



**Uplifting ergonomic news**

— Page 5



**Admiral's port of call**

— Page 8



## LAB COMMUNITY NEWS

### Weekly Calendar

#### Technical Meeting Calendar, page 4

Sunday  
**31**

Volunteers are needed today and Monday to serve as Wine Country Ambassadors or to serve on the Vineyard Tour Logistics Team: during the **Livermore Valley**

**Wine Country Vineyard Tour 2003.** Call Kathy or Barbara at 447-WINE or email [bmorgan@livermorewine.com](mailto:bmorgan@livermorewine.com) to register.

Tuesday  
**2**

A **Fidelity retirement counselor** will be available today, Wednesday and Sept. 16-17 to assist employees with assessing the current state of retirement accounts, learning how to diversify, planning asset allocation and identifying income strategies. Fidelity Investments Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC-managed investments pools. To set up a one-on-one consultation, call 1-800-642-7131 and specify that you are an LLNL employee.

Thursday  
**4**

Space is still available for the two-day **Comprehensive Retirement Planning Workshop**, Sept. 4-5, in the Bldg. 123 auditorium.

This workshop will provide a complete overview of the benefits from the University of California Retirement Plan, including eligibility requirements for continuing health benefits after retirement. To register on-line, go the Website. Cost is \$95; employees may register their spouse to accompany them at no additional cost by calling the Benefits Office, 2-9957.



The Lab's quarterly **blood drive** will be held in Trailer 4181, Sept. 8-11. Schedule an appointment in advance by going to the Website and click on

"blood drive" on the left side of the window. You can also schedule an appointment by calling 1-800-448-3543; use the sponsor code LLNL. Donor eligibility questions may be directed to the American Red Cross at 1-800-448-3543.

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The **Laboratory Women's Association's summer social-membership drive** takes place Sept. 10 at the LLESA pool/picnic area, 11:30 a.m.-1 p.m. Luncheon choices include barbecued chicken or portabella mushroom sandwiches, potato salad, fresh fruit, cookies and a drink. The association is also putting out a call for '04 nominations for president, vice president, secretary and treasurer. Please send nominations to Christine Bell at [bell2@llnl.gov](mailto:bell2@llnl.gov).

...

Alden Lane Nursery is hosting an evening of **"Wine and Roses"** on Sept. 20 from 6-8 p.m. in support of the Livermore Valley Education Foundation. The 17th annual Mount Diablo Rose Society Fall Show will fill the store. Wine, hors d'oeuvres and music will be provided. Cost is \$25. For more information, call 447-0280.

### A view of DWTF



JACQUELINE MCBRIDE/NEWSLINE

John Bowers of the Lab's Environmental Protection Department describes the Decontamination Waste Treatment Facility to colleagues Thursday during a tour of the building. The Radioactive and Hazardous Waste Management Division hosted morning tours.

### IN MEMORIAM

#### David Rufus Branum

David Rufus Branum of Livermore died Aug. 14. He was 79.

Branum was born Nov. 17, 1923, in Los Angeles. He served in the U.S. Navy, working with radar and radio transmission.

He worked for 38 years as an electrical engineer at the Laboratory until he retired in 1988.

Branum was an avid fisherman, camper, and gardener, and was a member of the American

Legion, the Institute of Electrical and Electronics Engineers, and was involved in the Apple Computer Users Club run through LLESA.

He is survived by his wife, Dorothy, of Livermore; three children, James of San Jose, and Lynn and Genell of Livermore; and six grandchildren.

Memorial services were held last week. A special interment also will be held at the Veteran's Cemetery in the Central Valley today at 1 p.m.

#### Robert Clark Spencer, Jr.

Robert (Bob) Clark Spencer, Jr. of Livermore died February 24. He was 72. Spencer was born on Aug. 30, 1930, in Louisville, Kentucky.

He served in the U.S. Marines from 1949 to 1952. In 1955, he graduated from the University of Louisville with a bachelor's degree in mathematics. He spent his career working at the Lab in the Technical Information Department (TID). He began as a technical editor/writer, led a TID team in Z Division, became the TID editorial division leader, and eventually served as department head. He retired in 1988.

Spencer enjoyed cooking, playing the piano, and fishing. He was very knowledgeable and had

a great command of the English language, which made conversing with him both fun and informative.

He is survived by his five children: Robert C. Spencer, III; David Spencer and his wife, Laura; Ellen Van Dyke and her husband, Don; Laura Keel and her husband, John; and Marian Blasquez and her husband, Dean. He is also survived by nine grandchildren: Kimberly and Daniel Spencer; Christopher and Spencer Van Dyke; Justine and Raylene Keel; and Kara, Brian, and Raymond Blasquez. Arrangements were made by the Neptune Society of Castro Valley.

#### Thomas Joseph Mulrooney

Thomas Joseph Mulrooney, a retired Lab police officer, died Tuesday. He was 75.

Mulrooney was born on Sept. 19, 1927, in County Roscommon, Ireland. He came to the United States when he was 19 and pursued a long career in law enforcement.

Mulrooney worked at the United Nations as a security guard, at the Nevada Test Site in the early stages of nuclear testing, in San Mateo County as a deputy sheriff, and as a university police officer at the Lab for 31 years.

He enjoyed fishing, bike rides with his wife and working on projects around his home.

He is survived by his wife of 41 years, Margaret; his daughters, Sheila Copenhaver of Reno, Patty Pierce, Maureen Hollum and Jeannie Lewis of Livermore and Margaret Kiester of Tracy; his sister, Eileen Oreagan of San Francisco; his brothers, Michael J. Mulrooney of Byron and John F. Mulrooney of Livermore; 11 grandchildren and two great-grandchildren.

Funeral services were held Thursday at St. Michael's Catholic Church in Livermore.

### Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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## AROUND THE LAB



# Scholarship recipients enhance careers through education

By Leslie Schwartz

NEWSLINE STAFF WRITER

Mitchell Moffet and Thomas Hindley were awarded LLNL undergraduate scholarships last week, providing the opportunity for them to pursue bachelor of science degrees at the University of the Pacific beginning Aug. 25. Through the LLNL Undergraduate Scholarship Program, the scholarships will help them enhance their current positions at the Lab by furthering their education.

The LLNL Undergraduate Scholarship Program provides a mechanism for the Laboratory to fill future workforce needs in critical areas through development of the existing workforce, while providing an opportunity for outstanding employees to advance their careers by returning to school.

Over the past three decades, more than 100 scholarships have been awarded to Lab employees who were given the opportunity to finish their bachelor's degrees and expand their knowledge and skill level.

Glenn Mara, deputy director for Operations, opened the ceremony stating that "employees like Mitchell and Tom represent the continued investment the Lab is making in its most important asset — the people. They are a hallmark of the Lab's success — continuing personal growth and professional development."

Jim Lopez, principal deputy associate director for Administration and Human Resources, was honored to take part in the recognition of the "high performers who are potential future leaders for the Lab."

Moffet, one of the two recipients for this year's award, is working toward a B.S. in mechanical engineering. He works in the Manufacturing and Materials Engineering Division as a senior mechanical technician doing materials testing. He started at the Lab in 1998 as a health and safety technician in Hazards Control. In 2002, Moffet made the transition to a senior mechanical technician working for the mechanics of materials group.

"When I got out of the Navy after eight years, I knew I wanted to go back to school," Moffet explained. "Then when I interviewed for a position at the Lab, they mentioned this scholarship and



JACQUELINE McBRIDE/NEWSLINE

The Undergraduate Scholarship Program makes it possible for Lab employees who have met certain qualifications to go to school full time to earn their bachelor's degree, while still being paid their full salaries. Front row: 2003 recipient Tom Hindley, 2003 recipient Mitchel Moffet and his wife Julie Moffet. Back row: Marilyn Hindley, Glenn Mara and Jim Lopez.

all the educational opportunities, and I knew it was where I needed to be."

After taking night classes at Las Positas College for four years, earning his associate degree in physics and serving as valedictorian earlier this spring, Moffet will finally get the opportunity to pursue this dream.

"The classes will give me the theoretical background I need to extrapolate on the practical experience I have obtained through the Navy and my job here at the Lab," he said. "I'll be able to think more on a global scale about what I'm learning and see how things interact."

Moffet plans to use this opportunity as a stepping-stone toward eventually completing a master's degree in mechanical engineering in the future.

Hindley, the second recipient, is going back to school to receive a B.S. in computer engineering. He currently works as a 300 series electronic technician on the Falcon Talon project for the Nonproliferation, Arms Control, and International Security Directorate.

"I applied for the scholarship because I've worked with some of the previous scholarship recipients and was impressed with their talents as engineers," Hind-

ley said. He has always wanted to join the ranks of the engineering force at the Lab.

A dedicated student, Hindley has been taking classes at Las Positas College toward a bachelor's degree in computer engineering for several years, one class at a time.

"This scholarship will allow me to achieve this goal in the next two years rather than the five or six years it would have taken doing it one class at a time," he said.

Hindley hopes that he can continue to maintain the high standard that the previous recipients have set through his scholarship and study at the university.

"There is a need for computer engineers throughout the Lab," Hindley said. "The skills, knowledge and abilities that I gain by studying computer engineering, combined with my experience as a technician, will provide me with the ability to apply math and science to solving real world problems."

Recipients of the scholarship receive full payment of all tuition and fees, their current base salary while attending school, and the added benefits of accru-

ing vacation and sick leave credits, retaining membership in their retirement system and eligibility for participation in group insurance plans.

To be eligible for the scholarship, employees must have worked at LLNL for a minimum of two years as a career or flex-term employee, currently maintain a minimum grade point average of 3.0, pursue a degree considered of high value to LLNL's current and future needs and have applied for admission to the college where they expect to earn their degree. A scholarship committee appointed by the director chooses recipients of the undergraduate scholarship.

Helen Fong, member of the scholarship committee, feels this ceremony "not only celebrates the recipients, but also celebrates the values of the Laboratory."

Laboratory values of employee development, commitment to the collective success of the Lab, and recognizing employee performance all are reflected in the Undergraduate Scholarship Program, she said.

## Class offers basics of financial and budget management at Lab

By Leslie Schwartz

NEWSLINE STAFF WRITER

Interested in financial management or want to know how to use the Lab's financial software and applications better? Why not take a comprehensive financial management course designed to teach the basics of finance and budget and how to optimize performance and increase your financial knowledge.

Financial Management Overview (FM5000) is a three and a half day classroom-based course taught by LLNL financial experts.

Brenda Ianiro, staff development administrator of the Chief Financial Office (CFO), says the aim of the course is to "establish a baseline of knowledge for beginning financial analysts, while cultivating a financial management network that employs sound financial practices."

More than 250 employees throughout the Lab make up the Financial Management Community (FMC). Jeffrey Fernandez, deputy CFO, said: "The need to approach our work as a discipline was apparent."

The FMC recognized the need to build a more cohesive and structured identity to help employees per-

form their jobs more effectively and coordinate with each other across departmental lines. An off-site conference, held in 2001, yielded the development of a training course as one component of the FMC action plan.

A pilot of the course took place in June. In this experimental run, senior financial managers from each directorate took time to explore ways to function more as a group and develop a sense of community. "This was the beginning of the identification of the Lab's distributed financial staff as a community," Fernandez explained.

An FMC steering group was then formed that included representatives from across the Lab and was integral in the formation of the new course on financial management, with goals of: addressing additional financial issues, such as classification and pay, communication and holding social events to further integrate the community.

Sponsored by the CFO and the FMC, the course is designed to offer employees the opportunity to expand their financial understanding about specific programs used at the Lab and acquire financial competency by using newly gained skills and information in the workplace.

Some of the course activities and topics include: pre and post-testing, as well as real-life scenarios and case studies where participants will work in groups to come to a decision about how to react and handle the issue; and application exercises where participants will create and duplicate specific products, such as a simple budget, in order to familiarize themselves with work they might encounter through their jobs.

Participants will work to estimate the costs for full-time equivalent employees, learn to make and use spreadsheets for reporting financial information, be exposed to different systems and software applications and be introduced to many other topics in the financial realm. The course also will address the ethical and business issues that financial managers face every day.

Benefits include the opportunity to be exposed to financial subject matter experts and participate in interactive exercises that outline basic financial situations applicable to a resource managers' lives at the Lab.

The course is scheduled for October or November and will be available for open enrollment through L-TRAIN. Cost for taking the course is expected to be minimal. For registration information, call 3-6764.



## NEWS YOU CAN USE

### BRIEFLY

#### Security kiosk move

During the weekend of Sept. 6–7 the post P-6B security kiosk, currently located on Ave. B just north of

Sixth Street, will be relocated south to its new location on Ave. B just north of Third Street.

This relocation will improve traffic flow to the Laboratory's southwest quadrant and is necessary to support the upcoming Fifth Street extensions to West Perimeter Drive and West Inner Loop. During this same weekend, the new security fence lines recently installed around Bldg. 261, the 1400 block, Trailer 2580 and Trailers 1677/1632 will also be activated.

Beginning Monday, Sept. 8, employees working within these new "limited area islands" will enter the areas through the newly installed electronic booths (double-door portals).

These access control changes are part of the Fifth Street Road Repair/Reroute project within the Facility Infrastructure and Recapitalization Program.

Removal of fencing, which defines the old Limited Area boundaries, will occur the week of Sept. 8. Road construction



work along Fifth Street is scheduled to begin in October.

For questions regarding this work, contact Sheree Swanson, Plant Engineering, 3-5636, or Paul Fink, Safeguards & Security, 3-8073.

#### Congressional staff at JGI

Staff members of the U.S. House and Senate Budget Committees visited the Joint Genome Institute (JGI) and other Bay Area labs last week to learn more about the the work supported by the Department of Energy's Office of Science.

During their visit, Ed Puccerella (U.S. House of Representatives), and David Pappone (U.S. Senate), toured the Production Genomics Facility and learned of JGI's plans for a variety of genome sequencing projects supporting DOE's missions in energy production, environmental cleanup and climate change.

The Budget Committee staffers played a key role in including language in the FY 2004 Congressional Budget Resolution that encouraged more funds for the Office of Science.

#### OSU online education programs

Oregon State University (OSU) now offers online graduate degrees in their nationally ranked programs of nuclear engineering and radiation health physics.

Four new graduate programs, which include a masters in nuclear engineering or radiation health physics, or a doctorate in nuclear engineering or radiation health physics, are currently available through the OSU extended campus.

OSU Ecampus delivers education courses and degrees to off-campus adults worldwide who are juggling work, family and other obligations. OSU Ecampus students have full access to numerous online services as well as quality courses developed exclusively for the virtual classroom by experts engaged in the latest distance education technologies.

Fall 2003 registration is underway now and classes begin Sept. 29. If you are not currently admitted, you can still register with non-degree student status for a limited number of classes before officially applying.

Visit the admissions page, <http://ecampus.orego.state.edu/register/Admission.eml>, for additional information or review course descriptions by going to the online catalog, <http://catalog.oregonstate.edu/>. For additional information on OSU extended campus programs, go to <http://ecampus.oregonstate.edu/> or contact the Ecampus Student Services Center, 800-667-1465 (8-5 PST).



## Technical Meeting Calendar

Friday  
29

#### CHEMISTRY & MATERIALS SCIENCE

"Nanometer-scale Analysis of Grain Boundary Segregation in Metals and Alloys," by

David B. Williams, Lehigh University. 3:30 p.m., Bldg. 235, Gold Room (uncleared area). Coffee and cookies will be served at 3:20 p.m. Contact: Tom Felter, 2-8012, or Rebecca Browning, 2-5500.

#### INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

"Numerical Conservation Properties of Least-Squares Finite Element Methods for Scalar Hyperbolic Conservation Laws," by Hans de Sterck, University of Colorado at Boulder. 2 p.m., Bldg. 451, room 1025 (uncleared area). Contacts: Rob Falgout (CASC), 2-4377, or Pamela Mears 2-3981.

Tuesday  
2

#### ELECTRONICS ENGINEERING

"Six Thousand Channel, One Board SONET/STM Multiplexer," by Frank Webster, L-3 Communications. 9 a.m.,

Trailer 1477, Genesis Room (cleared area). Contact: Debbie May, 2-1448.

Friday  
12

#### INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"The Life Cycle of Silicates," by Francisca Kemper, UCLA. Noon, Bldg. 219, room 163.

All Attendees must be badged. Contact Wil van Breugel, 2-7195, or Josie Morgado, 3-4188.

Tuesday  
16

#### ILSA SEMINAR

"Electron Acceleration by Langmuir Wave-Breaking in Local Ion Density Gradients," by Nathan John Sircombe,

University of Warwick, United Kingdom. 3 p.m., Bldg. 219, room 163 (uncleared area). Contact: Richard Town, 2-5389, or Josie Morgado, 3-4188.

Wednesday  
17

#### CHEMISTRY & MATERIALS SCIENCE

"Phonon Dispersion Studies by Inelastic X-ray Scattering," by Michael H. Krisch,

European Synchrotron Radiation Facility. 10:30 a.m., Bldg. 235, Gold Room (uncleared area). Contact: Joe Wong, 3-6385, or Rebecca Browning, 2-5500.

Thursday  
18

#### CHEMISTRY & MATERIALS SCIENCE

"Single-Molecule Magnets and Their Supramolecular Aggregates: A Molecular Approach

To Nanomagnetism," by George Christou, University of Florida. 9 a.m., Bldg. 235, Gold Room (uncleared area). Contacts: Art Nelson, 2-6488, or Roberta Marino, 3-7865.

Tuesday  
23

#### RADIATION DETECTION CENTER

"Biomedical Imaging with Combined X-ray Transmission and Radionuclide Emission

Detection Techniques," by Bruce Hasegawa, UCSF Physics Research Lab. 11 a.m., Bldg. 151, room 1207 (uncleared area). Contacts: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

#### The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to [tmc-submit@llnl.gov](mailto:tmc-submit@llnl.gov). For information on electronic mail or the newsgroup [llnl.meeting](mailto:llnl.meeting), contact the registrar at [registrar@llnl.gov](mailto:registrar@llnl.gov).

## NEWS OF NOTE



# Proper body mechanics prevent work injuries

## Health services offers classes in injury prevention

By Dale Sprouse

IBIS

Don't take your body for granted. Treat it right because it never stops working for you.

That is advice this month from the Safety and Environmental Protection Directorate, whose monthly safety theme has turned the spotlight on "body mechanics" and posture.

Body mechanics, says Health Services' physical therapist Ronnie Balan, concerns itself with how we move our body when we push, pull, bend, stoop, crawl, climb, reach, lift and carry.

"Good body mechanics is carrying out actions without causing injury," she says.

And posture, explains Melanie Alexandre, Hazards Control's Ergonomics Subject Matter Expert, refers to a static body, one that is not moving.

Proper posture, she says, involves keeping the spine in a neutral position when sitting or standing to eliminate the risk of possible back injury.

Balan and Alexandre say it is important for all of us to learn and practice proper body mechanics and posture.

We can get our body into trouble when we work it too long and too fast. We can injure our body by doing something as common as overreaching when we run a vacuum across a carpet, putting our kids in or taking them out of car seats and cribs, or working at an office computer and pivoting to stretch awkwardly for papers sitting atop a nearby table.

"Activities that can be done in very smooth movement with good body mechanics often get carried out through actions that can cause injury, such as twisting and turning and torquing of the spine," Alexandre says.

Balan says that although we may practice good body mechanics at work, we may sometimes slip out of that habit at home. "In a back care class I teach, I often tell people, 'Your back is with you 24 hours. You can do something very safe at work and then go and do something silly at home that gets you into trouble.'"

Balan cautions we should never underestimate the value of exercise and conditioning to keep our body working proper-



Proper lifting

Melanie Alexandre, the ergonomics subject matter expert in Hazards Control, demonstrates proper and improper body mechanics when lifting a child (left). The proper way is to lower your body, bring the child in close to you, and then stand as lifting. The improper way (right) is to arch your back to lift the child.

ly to ward off potential injury. "If you are not in good condition, you are at higher risk," she says.

Fortunately, she says, there is an array of educational resources on body mechanics and conditioning classes for Laboratory employees.

The LLESA recreation association, she

improvement are provided

Balan teaches a three-hour Back Care Workshop Through Hazards Control (HS5300). The class is geared toward employees assigned to continuous high-intensity repetitive tasks that repeatedly stress the same body parts without interruption for four hours or more per day. "Anyone is welcome to take the course," Balan says. "Often those who only lift occasionally could benefit from this course."

Among the topics discussed are proper lifting, sitting and standing; the nature of back injuries;

methods for preventing back pain; and exercises to strengthen the back. The course, says Balan, can be tailored to meet specific work-site needs.

One of the best ways to avoid body mechanics and posture problems is to develop self-awareness, says Alexandre. "We don't always move our body in the most efficient ways," she advises. "So when we are about to perform an action, we should think about what we are about to do."

Balan and Alexandre offer these general

tips to keep your body safe:

- When sitting, remember our parents' advice not to slouch. Slouching can cause spinal discs and ligaments to degenerate. We should sit with our back, neck and shoulders in a balanced position.

- When lifting an object, we should avoid bending our back. Instead we should use the power in our legs to lift. To do this, we should bend from our knees, lowering our body to bring an object within reach, then tighten our abdominal muscle and stand with our back in a neutral position.

- When carrying loads, we should use both hands, keeping the object we are carrying close to our body at waist level.

- When moving an object horizontally, we should push instead of pull. Pushing allows us to use our body weight as leverage. Pulling could lead to a back injury.

Additional information on classes can be obtained from the Course Catalog via the Web ([https://www-ais.llnl.gov/llnl\\_only/docs/hr/catalog](https://www-ais.llnl.gov/llnl_only/docs/hr/catalog)). Other information resources on ergonomics and body mechanics are Melanie Alexandre of Hazards Control (2-8237), Ronnie Balan of Health Services (2-4301), your ES&H Team members, or 2-ERGO, the Laboratory's one-stop ergonomics hotline.



Improper lifting

says as an example, offers "tremendous resources" for strengthening and conditioning. Other resources include body mechanics and posture assessments as part of ergonomic evaluations and personal attention from members of the Ergonomics Program's Injury Prevention Field Team.

In recognition of the fact that a large number of Lab personnel engage in a partial or full office move each year and that back injuries are one of the top three work-related injury/illness concerns to the Workers' Compensation system, Health Services offers a class on Preventing Back Injuries During Office Moves (OH8003).

The class reviews five predispositions to orthopedic injuries to the back, knees and shoulders at the workplace, and offers practical guidance in dealing with them.

One of Balan's Health Services' colleagues, Phil Arzino, conducts a Healthy Backs assessment (OH1003) by appointment only every Thursday in Health Services' Physical Therapy Center. The assessment, which can be done individually or in groups, is designed to evaluate the adequacy of the major muscle groups of the body and their joint actions to meet general occupational pursuits safely and effectively. Emphasis is placed on indicators of trunk strength and flexibility, with reference to back health and care. Recommendations for



## CLASSIFIED ADS

See complete classified ad listings at  
<https://www.ais.llnl.gov/newsline/ads/>

### AUTOMOBILES

2002 - Honda Accord, Auto, 4Cyl., PW, PL, PS, Front and Side air

bags, Silver, 4Door, 18, 100mi, clean, \$15,800, bluebook is \$16,900 925-935-7363

2000 - Dodge Stratus SE - Excellent cond, warranty, 10-CD changer, new front brakes & tires, AT, pwr d/w/s, AC/heat, 76,000 miles. \$6200 OBO 209-543-6899

1995 - Chevy Tahoe, excel cond, 350ci, V8, A/T, A/C, 4WD, all power, tow pkg, roof rack, premium wheels/new tires, AM/FM radio/CD/cas, 135k, \$10,500 OBO 831-637-1949

1995 - Oldsmobile 88 LSS, white exterior, leather interior, AM/FM/cassette/CD, ABS(4-wheel), pwr locks/windows/front seats, air bags, 87K miles, \$2700 OBO. 925-454-1516

1993 - Toyota Tercel DX, 137,000 miles, AT, AC, CD, Alarm, new tires, aluminum wheels, struts and brakes, \$2,500. 209-835-8962

1998 - Explorer 4X4 4WD XLT 4.0SOHC V6, auto, luggage rack, runningboards, tow pkg, many extras, very well maintained, 75.5K mi, \$9900 OBO. 209-599-7955

1989 - Honda Accord 5-speed 4-door new alternator and new tires, very dependable high mileage good condition. \$2,000 925-443-0369

1997 - Chrysler Seebring conv., white w/black top, excel cond, 65.5k, all pw, CD, \$6800 408-269-2930

2002 - Toyota Tundra extended cab, seats 6. V8, auto, camper shell, bedliner, tow package, pre-paid maintenance, 21K miles. Gray. Excel. cond. \$21,000. 925-942-3670

1959 - Ford Fairlane 4 Dr. 332 OHV (2 Bbl Carb) Engine and transmission recently rebuilt. \$2000. 925-449-1464

1995 - Toyota 4Runner, auto, leather, cassette/cd changer, 66k miles, excellent cond., original owner, \$9,000 515-451-6484

1994 - Pontiac Bonneville Fully Loaded, 129K miles, clean, Good Tires, new Battery \$2500./BO 209-836-2004

1999 - Dodge Ram Van, seats 12, 7yr/100k BtoB warranty, front and rear AC, power stuff and more. 48000 miles. \$11000. 925-516-0856

2001 - CHEV SUBURBAN 2500 4x4. Many extras. Low miles. Mod. fuel sys-good gas mileage. Ext. Wty. Sunroof. Towing \$27,500/OBO 209-599-7047

1993 - Ford Explorer, Eddie Bauer, 89k miles, White/Tan, garaged, new Michelin tires, exInt shape, leather, prem sound, all options except CD.

\$5500 OBO. 925-337-1106

1981 - BMW 320i 228k Mi. Fair Cond. \$1000 OBO 925-447-8557

1998 - MUSTANG-ROUSH EDITION GT Rare find! fully loaded/leather/ Mach stero/Roush Racing ground effects, intake, exhaust. \$11,500. 925-516-9510

1990 - Toyota Corolla wgn silver, AT AC, 1 owner, 136K, good cond, 1+ year old tires, good for commute. \$2,450. 925-639-5451

2002 - Mitsubishi Eclipse GT, fullyloaded, leather, charcoal grey, sun roof, 43K miles - \$16,000 209-858-1458

1995 - Lexus SC400 V8 LOADED, Excellent condition, CD changer, New Tires, New Brakes, Dark Green, 120K Miles, \$12,000. 209-824-1000

1987 - Dodge Daytona Shelby Turbo Z. Intercooled 2.2 turbo motor, 5-speed, T-tops. 29MPG \$1350 209-824-2177

1994 - Ford Escort Station Wagon LX, 131K, AC, CD, 5spd, 4cl, 1,500 obo 209-839-0068

2001 - Infiniti I30. 31,500mi. Brown, leather, moonroof, AT/AC/CD. Always garaged. Excellent condition in and out. \$20,000. 925-735-1787

2001 - Dodge Ram. 1500 Quad Cab 4X4. 5.9L SMPI V8 Magnum. Power win. & doors. AC. New Tires. Alarm. Tow Package. Shell incl. \$18K. 925-997-9507

1995 - Ford Probe SE, Sport Package, 63k miles, garaged, excellent condition. Great sporty commuter - 35mpg. Must sell \$4500 obo. 925-240-1090

### AUTOMOBILE ACCESSORIES

1991 - Honda Accord doughnut spare tire T115/70/D14 \$10 925-447-0678

Four wheels fit for Honda Accord; \$10.00 each. One wheel with tire fit for Honda Accord; \$10.00 Please call after 6:00 pm 925-449-3295

Ford Aluminum Wheels, 4-bolt pattern, with 14-inch Goodyear Eagle Tires, set of 4, \$200. 209-522-7872

American Racing Alloy wheels, 16X8, 6-lug, from 1998 Chevy. Set of 4: \$250.00 925-373-5918

Tonneau/bed cover for dakota 4 dr. trucks. Flat black, locks, bike rack. Factory bed liner. \$450 for both. 925-600-7551

Weiand Xcellerator manifold for oval port Chevy big block, \$80. Holley 650 cfm double pumper carburetor, \$80. 925-455-8609

### BICYCLES

Tandem mountain bike for two,

\$495 925-377-6537

### BOATS

1989 20ft Raven Cuddy Cabin, 3.0 Mercruiser I/O, fish/ski, New canvas top, CB + Marine radios, Eagle fish finder. \$5500 OBO. 209-662-0640

### CAMERAS

Sigma 28-200 zoom lens (up to 4x), Nikon mount, \$150 925-377-6537

2 Black ink and 1 color ink Cartridges for EPSON Stylus printer (Models 400, 500, 600, 600Q & EX700. Brand New, never been opened. Sell all for \$20. 925-245-1414

### ELECTRONIC EQUIPMENT

Keyboard for Mac or PC, Kensington comfort type multimedia. Brand new. Originally \$40. \$15. 925-648-0671

Wireless mouse, Kensington. Never opened, still in box for Mac or PC. Paid \$50, only \$20. 925-648-0671

Sharp Aquos 20inch LCD TV. Perf. Cond. Sell to upgrade. \$1150. Still a great price. After 9pm @ 925-376-1595

Color TV, Toshiba, 19 inch, works very well. \$75 925-443-1969

RCA XL-100 25 inch television, \$50. 925-455-8609

### GIVEAWAY

Zenith 25 inch color TV, in a nice walnut console. works. You pick up. 510-888-1626

single bed, little use (cleaning out guest room) 925-447-9978

Basketball backboard, hoop and pole. Set in concrete filled tire. You pick up. 925-455-4484

Free working washer. The washer is in good shape and works fine. You pick up in Pleasanton. 925-200-4241

Sofa, solid tan, fabric, modern style, good condition. u-pick-up. Leave message 925-754-8745

### HOUSEHOLD

One year old Amana refrig. Runs great. Energy Saver. Must sell. Paid 650.00, sacrifice at 400.00. 510-537-7222

Solid Oak Roll Top Desk. Excellent condition. \$350 925-447-6676

PRESSURE WASHER, Coleman Powermate Professional, 3500 psi - 4 gpm, 14-hp OHV Subaru Engine, new in box, \$600. 209-848-1375

Antique light. In good condition. Only 15.00. 510-537-7222

Wooden Roll top desk, 42x35x19 inches, ideal for stu-

dent, \$30 925-455-5863

Monitor stand with rotating storage system. Clears up desk clutter. Still in box, never used. Paid \$40. \$15. 925-648-0671

Cosco white toddler sleigh bed with mattress \$35 Magic Chef refrigerator with icemaker \$100 209-824-2177

White metal bunk bed--single on top, full on bottom. Complete with good mattresses. \$75 OBO. 925-243-1203

Toddler bed with mattress. 50.00 OBO 408-897-3031

Kitchen table with 6 chairs. Good condition, white-washed stain. Versatile oval dimension, 2 leaf extensions. Call for pictures via email. \$200. 925-964-0534

Black and Decker hedge trimmer, 16 inch cut, used once \$20 925-447-2392

Kirby G5 vacuum cleaner, with attachments, carpet shampooer. Includes 9 bags. \$200.00 925-443-0766

Simmons Beautyrest twin bed with frame. Very nice condition. \$100 925-455-4484

Antique cherrywood bedroom set. Full size headboard/footboard & rails. Two dressers 1/w mirror. \$350 OBO 209-545-5075

Baby swing, 6 speeds/music-like new \$50, Take-n-carry swing \$15, Cradle w/bedding, light wood \$60, Graco-Stroller \$40, Exer-saucer \$20. 925-829-5126

Retirement sale - Lots of machinist tools: calipers, micrometers, vises, cutting tools, some new. Available to see on 9/20 & 9/21. 925-447-6676

Captains bed, double dresser, 2 single dressers, 2 bookcases, mirror, chair. Excellent condition. \$425 510-635-6317

Couch, EKORNES, Danish brown leather, stuffed, on Teak frame, Dimensions(inches): 79x33x28 (\$150); Director Chair, White Naugehide on chrome frame(\$50) 925-443-1969

light fixtures, 2 bathroom light bars, 6 globes ea, brass and oak, excellent condition, \$15 each 925-443-5324

Refrigerator GE 17.7 cu ft freezer on top. Almond color with ice maker. Good cond. \$75. 925-443-9182

Med oak table green legs 4 chairs \$75.00, large area rug (wine, greens, tan) great condition \$50.00, Large Picture-Country Road \$40.00 925-846-2794

Brown 5 piece sectional sofa with 2 recliners and 1 sleeper, \$250. Stearns and Foster Super Firm queen size bed and frame, \$200 925-455-8609

Bedroom set, black and silver, headboard fits full to king, 2

night stands, dresser with mirror. Like new. \$350 925-443-9080

### MISCELLANEOUS

Solid Oak Office desk 74 inches long 40 inches wide with credenza. Reasonable. Good condition. 510-793-9135

SF Giants Tickets for Sat. 9/27 7:15 P.M. Game vs LA Dodgers. 2 tickets Sec. 131 Row 23. Sold to best offer. 925-200-4241

Pool cover with reel was \$350.00 asking \$150.00. Adjustable from 14ft for 20ft width, fits pool up to 16ft X 36ft. 925-443-3126

49ers vs. Chicago Bears Sept 7, 2003 2 tix @ \$58ea (face value) 209-599-9942

Lawn mower, 3.5 hp Briggs & Stratton engine, 20 inch cut, rear grass catcher, extra blades plus spare engine all for \$50.00 925-447-4173

Computer desk, oak finish, 2 file drawers & pull-out keyboard tray (53x59x24) \$125. Ice cream parlor table w/4 chairs \$40 OBO. 209-545-5075

### MOTORCYCLES

2003 - YZ-125 Pro Taper Bars, work connection frame, jetted, excel rims with fly stand. Only 5 rides. \$4500 925-447-0546

2003 - YZ-250 Renthal Bars, RMF Fatty Pipe Work Connection Frame, Jetted, Excel Rims, w/Stand - Beautiful Bike - \$5300 925-447-0546

### MUSIC INSTRUMENTS

Ludwig Super Classic 5-piece drum set. Vintage 1966 gold-sparkle. Chrome snare. 5 cymbals. Excellent++ condition. \$800. 925-634-9976

### PETS & SUPPLIES

Bonnie the cat needs a home. 7 years old, very affectionate, spayed, all shots, please help. 415-334-1003

Pixie - Bob kittens, one male, one female. first shots, box trained, good colors, bobbed tails. Very athletic, good with children. 209-835-4281

KITTENS- 2 orange males, 1 calico female 8wks. Spayed and shots. Donation to rescue center required. 510-339-7104

Quarter horse, 20 years old, great beginner or kids horse. Asking 2,700.00 OBO 408-897-3031

FREE Kittens. very cute, one male and one female. Rescued from Pleasanton trash dump. 925-449-9078

Contra Costa Horsemen Assoc. is having another play-day! High point buckles, large raffle, bbq, live music, and

**Due to space limitations, Newsline may withhold ads that have already run. They will still appear on the Web.**

**INTERNET**

*Continued from page 1*

“gangs” who take over and occupy turf (IP address blocks, for example) on the Internet, attacking their enemies or demanding the payment of “tribute,” much like the 18th century pirates off the Barbary Coast.

And finally, Graff imagines a doomsday scenario, involving what he calls “mutual assured downtime” in which a company or country designs a system to mount a counter-attack in case it is threatened, shutting down the Internet for a lengthy period.

But Graff, who framed his future-looking comments as “informed speculation,” isn’t necessarily pessimistic about the Internet’s future.

The Internet will also become more of a connection point for household appliances, according to Graff. He believes it’s inevitable that we will eventually hook up our refrigerators, ovens, and home thermostats.

In the medical profession, the Web is being used today for surgery by remote control, and for transferring information from X-ray, MRI and other scanning equipment, as well as sensors and samplers. Graff foresees the widespread integration of existing uses as well as an extension into “new spaces.”

All of this reliance on the Internet means that there will be a monumental increase in the amount of personal and heretofore private data that could potentially be harvested, including cross-correlating of individuals’ expense reports, credit card receipts, income tax reports, surveillance and traffic camera information.

Graff suggests, “Plan your political career (and



BY JACQUELINE MCBRIDE/NEWSLINE

Mark Graff discusses the future of Internet security.

love life) accordingly.” Graff also envisions an evolution of protective mechanisms and technologies that could safeguard users.

For example, he expects greater use of advanced authentication technologies, such as biometrics, which will examine voice, gesture, eye-tracking, facial expressions, and (some day) brain waves to verify identity. Encryption will become stronger and there will be less reliance on re-usable passwords and firewalls (which become weaker as more legitimate ports are opened.)

The dominant form factor will be tiny and endemic. For example, he expects an explosion in the use of tiny “smart dust” microprocessors capable of receiv-

ing and transmitting data to the Internet.

Graff also predicts an increase in the use of Radio Frequency Identification chips, known as RFIDs. These devices, used now for tasks such as warehouse inventory control, are transceivers about the size of a grain of rice, that can be attached to items to be monitored or tracked. Graff says he’s interested in exploring whether RFIDs could be used here for such unclassified applications as tracking removable media.

Graff, who has an extensive background in computer security, spent eight years at Sun Microsystems, and was chief scientist at Para-Protect Services for two years. He has authored several books as well.

Since coming to LLNL six months ago, he has spent much of his time examining ways to help tighten security, but, he says, “we have to do it without slowing down the Lab’s scientific mission.” He calls it “the greatest challenge of my career, and a fascinating problem.”

His plans include changing authentication procedures over the next few years, to include more biometrics, and possibly encoding smart chips in badges.

He hopes to solve the problem of multiple passwords, and employ encryption wherever practicable. By utilizing careful engineering and advances in technology, Graff says he and other cyber-security professionals can help lessen the burden of security on the Lab population. He points out that most of the groundwork has already been laid, and the Lab is filled with computation and other experts, which means we have an edge over other institutions facing similar challenges.

As chief cyber security officer, Mark Graff is responsible for long-range cyber security strategic planning, policy and architecture. Graff is part of Ken Neves’ CIO Program Office.

**PROTEIN**

*Continued from page 1*

The work, presented in the Aug. 29 edition of *Science*, marks the first time protein-folding kinetics has been monitored on the single-molecule level.

Proteins are long chains of amino acids. Like shoelaces, they loop about each other or fold in a variety of ways, and only one way allows the protein to function properly. Just as a knotted shoelace can be a problem, a misfolded protein can do serious damage. Many diseases, such as Alzheimer’s, cystic fibrosis, mad cow disease and many cancers result from misfolded protein.

Livermore’s Lawrence postdoctoral fellow Olga Bakajin worked with scientists from the NIDDK Laboratory of Chemical Physics at the National Institute of Health and the Physikalische Biochemie Universität Postadam in Germany to develop a microfluidic mixer for studies of protein folding. With this mixer, researchers were able to access information about the protein folding reaction that was never available from ensemble measurements or even from the newer single molecule equilibrium measurements.

“For the first time, in this experiment we were able to look at a protein on a single molecule level at defined times after the folding reaction was initiated,” Bakajin said. “With this method we are

able to see and isolate intermediate states that under equilibrium conditions only exist for a brief period of time.

“This is a fundamental science project. We would like to understand the sequence of events through which a protein goes from a random coil to its functional ‘folded’ form, and we’ve designed an instrument that can help us do this. Now the instrument can be used to study many different proteins so we can come up with some general rules as to how proteins fold.”

Understanding of protein folding will contribute to better understanding of the diseases, which in turn will lead to better treatments, she said.

dancing. Call for details! 925-381-2359

Oat Hay and Forage Mix Hay, Clean and Certified, can go into National Forests. In the stack \$8 per bale. Can deliver locally, Livermore 925-449-5640

Rottweiler/Shephard Mix Puppies, 8 weeks old. Very cute. Please take one home! 209-607-9529

**RECREATION EQUIPMENT**

2 wet suits (shorties). Mens medium/small. Rarely used. Like new condition. O'Neill \$75. Seaquest \$55. 925-634-9976

SCUBA Gear. Regulators with octos, computers, BC, DUI Dry Suit with divewear. All in great shape at a great price. Call for more info. 925-454-9253

Pacific Fitness Home Gym - great condition \$400 OBO 925-240-6237

**RIDESHARING**

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Fremont - Seeking female rider/driver or a van pool. Work Hours 8:00-5:00 or 9:00-6:00. Call 510-651-3678, ext. 3-9087

**SHARED HOUSING**

Livermore - Room in Livermore Home w/shared bath. \$550.00 mo.+ deposit. Includes utilities, cable/Internet. No pets. 10 min to LLNL 925-456-7528

Livermore - 1 room in a 3 bedroom house. \$600 total a month. \$600 deposit. Washer/Dryer, shared bath. No-smoking or pets. Large yard. Street parking. 925-245-1725

Livermore - Bedroom/private bath/shared office in 3 bedroom house. Laundry/kitchen priv. Community pool/spa. 4 mi. to LLNL. \$575 + half util. 925-447-5456

San Ramon - Cute 2Bed/2Bath condo on golf course. Gated, pool, club house, garage. Share with one nice female roommate. \$800 +1/2 utilites 925-918-1747

**SERVICES**

Relax with Massage Therapy!Spe-

cial-1 hour only \$45! Reg. \$55. Relieve muscle aches and stiffness, Reduce stress!W.C. 925-367-4830

Need A TUTOR- SRVUSD teacher on child care leave looking for 3rd thru 6th grade students. Tutoring at our home only,located in Danville. \$50/hr. 925-964-0534

35mm scanning and printing services. Excellent rates. Satisfaction guaranteed. 925-625-3350

**TRUCKS & TRAILERS**

1962 - Ford F-100 Custom Cab, Long Bed, 292 V-8, Automatic, runs good. \$2000/bo 209-599-7678

1991 - Ford Lariat XLT Supercab, V8 4WD,Auto.,Loaded, tow pkg, dual tanks, bed liner, nice wheels/tires, well taken care of. 925-449-4796

2001 - Toyota Tundra LTD w/new tires, running boards, spray-on bed liner, 6CD Xer, day time running lights, tow pkg and more 28K miles \$21K OBO 925-449-5481

1978 - 28ft Winnebago Moto-home, Generator,AC, good condition. - \$4500. OBO 925-462-

0287

1973 - Chevy shortbed pick up, 350/350 4wd, shift kit, auto. Decent shape, needs little work to be perfect. Using as a work truck. 1500\$ firm 209-527-4990

1989 - Suburban 4X4 3/4 ton, custom paint white/silver/blue, lifted, nerf bars, rear air, new tires, tow package, 3rd seat, all power - must see \$6900 obo 209-832-1737

**VACATION RENTALS**

Mountain cabins are great in summer!Hiking, fishing, creeks, wonderful smells. 4bedr.2 bath, fully equipped kitchen , near Arnold. 925-245-1114

Soooo cute beach cottage in Santa Cruz. 4 short blocks to beach. 2bedr,2bath. Sleeps 7-8. Fully equipped kitchen, spa. 925-245-1114

SOUTH LAKE TAHOE - 3 Bedroom 2 bath Chalet, nicely furnished, All amenities, Park w/ Lake, tennis etc. Great for family vacation! RESERVE NOW FOR SUMMER OPENINGS! 209-599-4644

**WANTED**

WANTED: Double bassist for low-pressure bluegrass/acoustic band. Please call 925 600-1817.

1997 Thunderbird in good condition, fairly low miles. 510-582-2938

Wanted Babysitter: Someone who enjoys children and would like to do occasional babysitting for a 4 year old boy. 925-306-9741

Tyke or Step 2 play house for toddler. 209-823-1895

Xbox with halo, controlers would be nice too if possible. 925-449-1318

Looking for a large chest or upright freezer for a good price. Will haul. 925-980-1895

WANTED: Small, used outboard motor at reasonable price, 7.5 to 15hp. 925-606-5982

Services and merchandise listed in *Newsline* are not guaranteed. It is up to the buyer to scrutinize services purchased.

## GAS GUN

*Continued from page 1*

ounce.

Charles McMillan, B-Division leader, said, "Gas gun experiments provide information that is critical to the Stockpile Stewardship mission." He shared Martinez's enthusiasm adding, "The results from this first JASPER plutonium shot were the most accurate plutonium gas-gun data to date."

Upon completion of this landmark experiment, National Nuclear Security Administration Ambassador Linton Brooks concluded: "Our national laboratories now have at their disposal a valuable asset that enhances our due diligence to certify the nuclear weapons stockpile in the absence of underground nuclear weapons testing."

"JASPER has validated itself as an important tool for plutonium shock physics. Everything worked exactly as planned. We now are looking forward to the data review and shot number 22," said chief scientist Neil Holmes.

An important experimental technique to determine the properties of materials at high temperatures, pressures, and strain rates is to shock the material, then measure the response. Lab scientists fired a tantalum projectile at more than five kilometers per second at a plutonium target. The impact produced a high-pressure shock wave that passed through the target in a fraction of a microsecond. During this extremely brief period, diagnostic equipment measured the properties of the shocked plutonium inside the target. These shock physics experiments complement the on-going



The success of the first "hot" plutonium shot at JASPER resulted from years of effort in facility construction, gun installation, system integration, design reviews, and authorizations by a diligent team, many of whom are shown here standing before the giant gun's open secondary containment chamber.

subcritical experiment program currently in place at the Nevada Test Site.

JASPER, an acronym for Joint Actinide Shock Physics Experimental Research, is a nearly 100-foot, two-stage gas gun. It was built and activated at a total cost of \$20 million inside existing facilities within Area 27 at the Nevada Test Site.

Inside the gun's first stage, hot gases from a burning propellant drive a heavy piston down a pump tube, compressing a gas — typically hydrogen. That gas builds up to extremely high pressures, breaks a valve and enters the narrower barrel of the second stage, propelling the projectile — which is housed in the barrel

— towards the target. JASPER can fire small projectiles at velocities of up to eight kilometers or five miles per second — which is nearly 18,000 mph or more than 24 times the speed of sound.

The gas gun completed a series of 20 inert or non-nuclear shots to qualify it for use with nuclear materials. This first plutonium shot marks the culmination of years of effort in facility construction, gun installation, system integration, design reviews and authorizations to bring the experimental facility on line. The gun can fire about 24 experiments per year, costing about \$6 million annually over its 10-year life.

Although similar two-stage light gas guns have been in operation at Lawrence Livermore, Los Alamos and Sandia national laboratories for many years, they cannot perform experiments on plutonium, other actinides or other hazardous materials. Livermore operates JASPER, but the gun will see multi-laboratory experimental use.

In the absence of full-scale nuclear testing, JASPER's role in NNSA's Stockpile Stewardship — along with subcritical experiments — is to help assess the aging of nuclear weapon components to verify that aging weapons can perform as designed.

"I am proud of our team effort that produced the successful JASPER shot. I have personal appreciation for the extraordinarily challenging nature of plutonium. The precise data generated by these gas gun experiments will open up our scientific understanding of plutonium," said Bruce Goodwin, associate director for Defense and Nuclear Technology — who also happens to be an E. O. Lawrence Award winner for pluto-

## GREY

*Continued from page 1*

opportunity for me and the Laboratory. The Lab has really supported me in this new effort."

Grey, a Navajo, was born and raised in Kayenta, Ariz. on the Navajo Nation and graduated from Monument Valley High School. He attended Dine' College and received his bachelor's degree in mechanical engineering from Northern Arizona University. Grey also earned an MBA.

Upon arriving at the Lab in 1989, he worked in Engineering's Energy Division. From early on, Grey played a leadership role in American Indian outreach and education programs for the Laboratory and went on to manage a DOE field office at Dine' College in Shiprock, N.M.

As DOE's director of Indian Affairs and principal liaison between DOE and tribal governments, he will have an opportunity to influence

policies affecting American Indian nations. "Tribes own 15 percent of the natural energy resources in the United States," Grey said. "Our office will be able to help direct policy on how the department can best work with, and assist the tribes."

Energy Secretary Spencer Abraham has taken an interest in tribal matters and indicated he would like to meet with the tribes, according to Grey. One of the first tasks for Grey is to setup a major tribal summit meeting between the tribes and DOE.

To bring stability to what has historically been a political appointment, the job Grey takes over has been turned into a full-time career position within the department.

Grey will divide his time between DOE headquarters, the Laboratory and New Mexico where he and his wife reside. His wife Rose, a civil engineer, works for the Office of Surface Mining Program under the Navajo Nation.

Ron Cochran, Laboratory executive officer, said Grey is especially well suited to this job.

"Steve brings to his new responsibilities an extraordinary amount of experience in building both Lab science education and outreach programs and working with DOE as well as the tribes," he said. "Thanks in large measure to Steve's efforts, the Lab has taken a leadership role in providing education and training opportunities for American Indians in science and engineering.

"The Laboratory shares great pride in the success he's had building partnerships with Indian communities. We wish him continued success as he takes on these new challenges for DOE's efforts to enhance its American Indian programs."

## Lab is admiral's port of call

U.S. Navy Admiral Vernon Clark visited the Laboratory Wednesday and received an overview of LLNL programs from Director Michael Anastasio. Clark also received briefings on stockpile stewardship, nonproliferation and arms control as well as other national security programs.



FRANK NUNEZ/IBIS



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